

<i>iConverter T1/E1</i> Copper RJ45/RJ48 Dual Fiber Modules					
Connector Type	Distances	ST	SC	MT-RJ	LC
MM	5 km	8700-0	8702-0	8704-0	
SM	30 km	8701-1	8703-1	8705-1	8707-1
SM	60 km	8701-2	8703-2		8707-2
SM	120 km		8703-3		
<i>iConverter T1/E1 SF</i> Copper RJ45/RJ48 Single-Fiber Modules					
Connector Type	Distances	Tx: 1310 nm, Rx: 1550 nm	Tx: 1550 nm, Rx: 1310 nm		
SM, SC	20 km	8710-1	8711-1		
SM, SC	40 km	8710-2	8711-2		

Mounting Instructions:

iConverter modules are hot-swappable and can be installed into any chassis in the *iConverter* family.

- Carefully slide the *iConverter* module into the installation slot, aligning the module with the installation guides. NOTE: Ensure that module is firmly seated against the backplane.
- Secure the module by securing the panel fastener screw (attached to module) to chassis front.

LED Indicators:

LED	Color	Status	Description
Power	Yellow	On	Power Applied
Fiber	Green	Off	No signal detect
		On	Signal detect
		Blink	All ones received
UTP/Coax: Green		Off	No signal detect
		On	Signal detect
		Blink	All ones received
Test	Green	Off	Normal operation
		On	Loop or All 1's Test mode
		Blink	FOT Received master
		Fast Blink	FOT Received slave

<i>iConverter T1/E1</i> Copper Coax + RJ45/RJ48 Dual Fiber Modules					
Connector Type	Distances	ST	SC	MT-RJ	LC
MM	5 km	8720-0	8722-0	8724-0	
SM	30 km	8721-1	8723-1	8725-1	8727-1
SM	60 km	8721-2	8723-2		8727-2
SM	120 km		8723-3		
<i>iConverter T1/E1 SF</i> Copper Coax + RJ45/RJ48 Single-Fiber Modules					
Connector Type	Distances	Tx: 1310 nm, Rx: 1550 nm	Tx: 1550 nm, Rx: 1310 nm		
SM, SC	20 km	8730-1	8731-1		
SM, SC	40 km	8730-2	8731-2		

Description:

The *iConverter* T1/E1 connects T1 and E1 devices such as PBXs, CSUs and routers, via multimode (MM) or single-mode (SM) fiber. Designed to extend the standard T1/E1 twisted pair or Coax network distances over fiber, this converter provides protection from environmental noise and effectively increases high-speed network reliability.

Fiber Optic Cable Attachment:

Connect the fiber cables between the *iConverter* T1/E1 converters. The Transmit (Tx) must attach to the Receive (Rx) side and the Receive must attach to the Transmit side.

If using a single-fiber model, attach the fiber cable to the

Fiber Cable Specifications:	
<i>Multimode</i>	
Cable:	50/125, 62.5/125, 100/140µm
Wavelength:	1300nm
Max Distance:	5km/3 mi.
<i>Single-mode</i>	
Cable:	9/125µm
Wavelength:	1300nm
Max Distance:	30km/18 mi.
<i>Single-mode Long-haul</i>	
Cable:	9/125µm
Wavelength:	1300nm
Max Distance:	120km/72 mi.

Copper Cable Specifications:	
<i>Twisted Pair Cable for T1</i>	
Gauge	22 to 24AWG
Impedance	100Ω ± 10%
Impedance Characteristic	2.6db/100m @ 1Mhz
Maximum Distance	6,000 ft.
<i>Twisted Pair Cable for E1</i>	
Gauge	22 to 24AWG
Impedance	120Ω ± 10%
Impedance Characteristic	2.6db/100m @ 1Mhz
Maximum Distance	8,000 ft.
<i>Coax Cable for E1</i>	
Gauge	22 to 24AWG
Impedance	75Ω ± 10%
Impedance Characteristic	2db/100m @ 1Mhz
Maximum Distance	8,000 ft.

fiber port of the appropriate mate for that device. For example, if one side is the *iConverter* model 8710-1, which transmits at 1310nm and receives at 1550nm, the other side must be the *iConverter* model 8711-1, which transmits at 1550nm and receives at 1310nm.

Note: Use fiber cables that are compliant with the specifications that are outlined in fiber cable specifications.

Copper Cable Attachment:

RJ-45/RJ-48 T1/E1 Connector:

Connect to the RJ-45/48 connector on the *iConverter* T1/E1 converter via a Category 3 or better cable (Category 5 is recommended), and attach the other end to the network equipment. (The twisted pair connection requires two active pairs in a T1/E1 environment. The active pairs are pins 1 & 2 and pins 4 & 5. Only dedicated wire pairs should be used for the active pins.) Set up the UTP DCE/DTE switch for the RJ-45/48 port to the appropriate setting.

Note: Use copper cables that are compliant with the specifications that are outlined in copper cable specifications.

Coax E1 Connector:

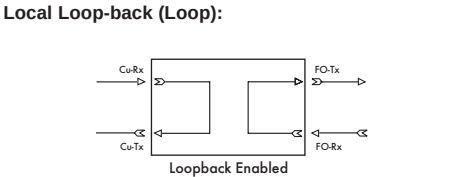
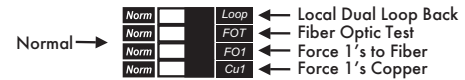
Attach the BNC cables to the *iConverter* T1/E1 converter and attach the other end of the BNC to the network equipment. The Transmit (Tx) must attach to the Receive (Rx) side and the Receive must attach to the Transmit side.

Note: Use copper cables that are compliant with the specifications that are outlined in copper cable specifications.

SPECIFICATIONS	
Model	T1/E1
Protocols	ANSI, AT&T, ETSI, ITU
Copper Connectors	RJ-45/RJ-48, Coaxial
Fiber Connectors	ST, SC, LC, MT-RJ, Single Fiber SC (T1/E1 SF)
Controls	UTP X-over, L/LB, FO1, Cu1, FOT, Cable Type
LED Displays	Pwr, Test, RJ-45/RJ-48 Link, UTP link, FD/HD
Dimensions	W0.85" x D4.5" x H2.8"
Weight	8 oz.
Compliance	UL, CE, FCC Class A, NEBS 3
Temperature -Operating -Storage	0 to 50 C -40 to 80 C
Altitude	0-10,000 ft
MTBF (hrs)	895, 255

Front Panel Switch Settings:

The following operational switches located on the front of the *iConverter* T1/E1 converter are to assist in installation and fault isolation.



This switch will set the *iConverter* T1/E1 converter in a loop-back mode on both the fiber and copper connections. By returning the switch to the normal position, the unit will resume normal operation.

Transmit/Force 1's to Fiber (FO1):

This switch is used to insert an "all ones" pattern into the data stream being transmitted out of the fiber port on the T1/E1 converter. Data being received on the coax or twisted pair will be disabled and data being received on the fiber is passed through to the coax or twisted pair side. By returning the switch to the normal position, the unit will resume normal operation.

Transmit/Force 1's to Coax or UTP (Cu1):

This switch is used to insert an "all ones" pattern into the

Warning

The operating description in this Instruction Manual is for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this unit other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology, Inc.

Warranty

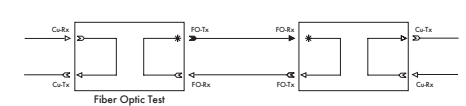
This product is warranted to the original purchaser against defects in material and workmanship for a period of TWO YEARS from the date of shipment. A LIFETIME warranty may be obtained by the original purchaser by REGISTERING this product with Omnitron within 90 days from the date of shipment. TO REGISTER, COMPLETE AND MAIL OR FAX THE REGISTRATION PORTION OF THIS INSTRUCTION MANUAL TO THE INDICATED ADDRESS. Or you may register your product on the Internet at <http://www.omnitron-systems.com>. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective.

For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

data stream being transmitted out of the coax or twisted pair port on the T1/E1 converter. Data being received on the fiber will be disabled and data being received on the coax or twisted pair is passed through to the fiber side. By returning the switch to the normal position, the unit will resume normal operation.

Fiber Optic Test (FOT):

This switch will allow the entire fiber segment to be tested at either of the *iConverter* T1/E1 converters without having to set switches on both units. When set in this mode of operation, the local unit is switched in a local loop-back mode. In addition to the local loop-back mode of operation, the fiber Tx port will be further encoded to carry a loop-back protocol. This remote loop-back protocol will set the far end of the *iConverter* T1/E1 converter to remote loop-back mode of operation and return a signal to the sending unit. A blinking LED on the local and remote *iConverter* T1/E1 converters show a confirmation that the fiber segment is communicating properly between devices. By returning the switch to the normal position it will resume to normal operation.



AMI/B8ZS/HDB3 Mode:

B8ZS or HDB3 is the default mode of operation. To select AMI mode set both the Loop and FOT switches on the front of the module.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

Exclusive Remedies

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

UTP DCE/DTE Setting:

The UTP DCE/DTE button is used to eliminate the need for cross-over and custom cables to connect devices together when using the RJ-45/48 port. Leave button out to use a straight-through cable and push button in when a cross-over would be required.

Board Mounted Switch Settings:

T1/E1 Copper Line Configuration Settings:

The T1/E1 copper line codes and line lengths are configured using DIP switches located behind the front panel switches.

Line Type	Port Type	Distances	Switch Positions			
			1	2	3	4
T1 DSX-1	RJ-45/48	0' - 133'	↓	↓	↓	↓
T1 DSX-1	RJ-45/48	133' - 266'	↓	↓	↑	↑
T1 DSX-1	RJ-45/48	266' - 399'	↓	↓	↑	↓
T1 DSX-1	RJ-45/48	399' - 533'	↓	↓	↑	↑
T1 DSX-1	RJ-45/48	533' - 655'	↓	↑	↓	↓
T1 DS-1	RJ-45/48	0 dB	↓	↓	↓	↓
T1 DS-1	RJ-45/48	-7.5 dB	↓	↑	↑	↑
T1 DS-1	RJ-45/48	-15.0 dB	↓	↑	↑	↓
T1 DS-1	RJ-45/48	-22.5 dB	↓	↑	↑	↑
E1 75 Ω	Coax/BNC	Standard	↑	↓	↓	↓
E1 120 Ω	RJ-45/48	Standard	↑	↓	↓	↑
E1 75 Ω	Coax/BNC	Extended	↑	↓	↑	↓
E1 120 Ω	RJ-45/48	Extended	↑	↓	↑	↑

Technical Support:

For help with this product, contact our Tech. Support:

Phone: (949) 250-6510

Fax: (949) 250-6514

Address: Omnitron Systems Technology, Inc.
27 Mauchly #201
Irvine, CA 92618 USA

E-mail: support@omnitron-systems.com

URL: <http://www.omnitron-systems.com>